
Ecology Report

PROPOSED RESIDENTIAL BARN CONVERSION
Greenoak Farm, Stonham Road, Mickfield, Suffolk

October 2022



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Executive Summary

MHE Consulting Ltd were instructed to undertake ecological surveys and assessment of a barn and adjacent land at Greenoak Farm, Stonham Road, Mickfield, Suffolk, to inform submission of a planning application to Mid Suffolk District Council to convert (and extend) the barn into a residential dwelling, and to construct two new cart lodges, a courtyard area, a driveway, and vehicular access.

The proposed development site comprises a large timber-framed barn set within an area of managed grassland. Boundary habitats include mature broadleaved trees and conifers, a moat/drainage ditch (currently dry) and several ponds (only one currently holds water).

An initial inspection of the barn found evidence of likely roosting by small numbers of common bat species, including pipistrelle (*Pipistrellus* sp.), brown long-eared (BLE) (*Plecotus auritus*) and Natterer's (*Myotis nattereri*), with bat activity surveys confirming active day roosts used by BLE and common pipistrelle (*Pipistrellus pipistrellus*).

Three ponds in close proximity of the barn were assessed for their suitability to support breeding great-crested newts (*Triturus cristatus*) and other amphibians. The closest pond P1 was assessed as supporting *Average* habitat suitability whilst ponds P2 and P3 found to be dry at the time of the site walkover and were assessed as supporting poor habitat suitability. Terrestrial habitats offer some foraging (e.g. short grassland) and limited refuge opportunities (e.g. boundary trees/hedgerows and ditch) for amphibians but are unlikely to support most common reptiles, with the exception of the occasional grass snake (*Natrix helvetica*), which may pass through the site on-route to hunt in pond P1.

The barn supports some stock dove (*Columba oenas*) (Amber Status) and wood pigeon (*Columba palumbus*) (Amber Status) nests as well as a wren (*Troglodytes troglodytes*) (Amber Status) nest/roost in a cavity in a joint on the central wall. The dense growth of ivy on the external walls will also provide further nesting/roosting opportunities for small passerines.

Hedgehogs (*Erinaceus europaeus*) will forage over the grassland areas and could seek refuge within the base of trees and ditch along the garden boundaries whilst brown hare (*Lepus europaeus*) could inhabit adjacent arable fields and occasionally enter the garden to graze. Mature trees/shrubs along the garden boundaries and pond P1 could also support some S. 41 list invertebrates, including Lepidoptera and Odonata.

Recommendations are made to avoid wildlife offences and ecological impacts. Where impacts cannot be avoided, measures are proposed to mitigate remaining effects including timing of works, good working practices and proceeding under a Natural England protected species licence, with necessary compensation detailed. Biodiversity enhancements are proposed.

1 Introduction

1.1 BRIEF

MHE Consulting Ltd were instructed to undertake ecological surveys and assessment of a barn and adjacent land at Greenoak Farm, Stonham Road, Mickfield, Suffolk (TM 13608 61285; Figure 1), to inform submission of a planning application to Mid Suffolk District Council to convert (and extend) the barn into a residential dwelling, and to construct two new cart lodges, a courtyard area, a driveway, and vehicular access.

The ecological survey and this report are necessary to:

- Identify the existing ecological value of the site;
- Identify the need for further (e.g. protected species) surveys;
- Assess any potential adverse impacts of the proposed development on ecological features of the site or nearby designated sites;
- Make recommendations for mitigation (if required); and
- Identify opportunities for biodiversity enhancements and, consistent with national and local planning policy, net gains.

The results will form the basis for the submission of biodiversity information with the planning application. It reflects the site at the time of the survey and should be reviewed and revised as appropriate.

1.2 SITE LOCATION AND DESCRIPTION

The proposed development site (Figure 1) is located off Stonham Road, Mickfield and comprises an existing timber-framed barn (Photos 1 to 6) situated within an area of managed grassland (Photo 7). Boundary habitats include mature broadleaved trees (Photos 8 and 9) and conifers, a moat and ponds (Photos 10 to 12).

Photos of habitats present are provided within Appendix A1

2 Planning policy and legislation

2.1 INTRODUCTION

This chapter summarises the key legislation and policies relevant to assessing the biodiversity impacts of the scheme upon habitats and species.

2.2 PLANNING POLICY

2.2.1 *National Planning Policy Framework (NPPF)*

The National Planning Policy Framework was originally published in 2012 and most recently revised in July 2021. The document sets out the Government's planning policies for England and provides guidance on how these policies are expected to be applied. It provides a framework for, and must be taken account of within, locally prepared plans for housing and other development, and is a material consideration in planning decisions.

An overarching objective of the NPPF, which aims to integrate and secure net gains, is to contribute to protecting and enhancing the natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The full NPPF is available to view online using the gov.uk website: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf . Policies of particular relevance to development and biodiversity include 174, 180, 181 and 182.

174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

180. When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSI;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181. The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

182. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

2.2.2

Local Plan

Adopted local plans provide the framework for development across England, and include policies related to conserving and enhancing the natural environment. Existing planning policies and supporting documents used to plan, deliver, and monitor development across the Mid Suffolk Council area can be found at: <https://www.midsuffolk.gov.uk/planning/planning-policy/adopted-documents/mid-suffolk-district-council/mid-suffolk-local-plan/>.

Babergh and Mid Suffolk Councils are currently in the process of creating a joint local plan.

2.3

LEGISLATION

2.3.1

Environment Act 2021

The Environment Act received royal assent in November 2021. The Act will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes an important new target to reverse the decline in species abundance by the end of 2030. Of particular relevance to

development planning will the requirement for all new development to deliver a quantified (10%) Biodiversity Net Gain.

2.3.2 *Natural Environment and Rural Communities (NERC) Act 2006*

Section 40 places a duty on every public body in exercising its functions, to have regard to the purpose of conserving biodiversity; this includes restoring or enhancing populations or habitats. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and public-sector decision making. *Species and habitats of principal importance* in this respect are those published under Section 41 (“S. 41”) of the NERC Act 2006.

2.3.3 *Wildlife and Countryside Act 1981 (as amended)*

Rare and scarce habitats and species are afforded varying levels of protection under the Wildlife and Countryside Act 1981 (as amended) (hereafter “WCA 1981”). Some species and groups are afforded full protection (e.g. Schedule 1 bird species, bats), whilst others receive partial protection (e.g. widespread reptiles). Section 3.1 provides further detail relevant to this scheme. Species afforded legal protection are referred to by their relevant schedule (“Sch.”) within the act, i.e. “Sch. 1” (birds), “Sch. 5” (other animals), or “Sch. 8” (plants).

Invasive plant species such as Japanese knotweed (*Reynoutria japonica*) and giant hogweed (*Heracleum mantegazzanum*) are listed on Schedule 9 of the WCA 1981. It is an offence to plant or otherwise cause these species to grow in the wild and this includes the development of sites such that the plant colonises land owned by a third party.

2.3.4 *The Countryside and Rights of Way (CROW) Act 2000*

The CROW Act 2000 strengthened and updated elements of the WCA 1981, and gave a statutory basis to biodiversity conservation, requiring government departments to have regard for biodiversity in carrying out its functions and to take positive steps to further the conservation of listed habitats and species. It strengthened the protection of SSSIs and threatened species. Many of its provisions have been incorporated as amendments into the WCA 1981 and some have been superseded by the NERC Act 2006.

2.3.5 *The Conservation of Habitats and Species Regulations 2017*

The Conservation of Habitat and Species Regulations 2017 (hereafter referred to as the Habitat Regulations 2017) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), and elements of the EU Wild Birds Directive, into national law. The 2017 Regulations provide for the designation and protection of ‘European sites’ (SPAs, and SACs), the protection of ‘European Protected Species’ (“EPS”), and the adaptation of planning and other controls for the protection of European Sites.

They have been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019, which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the relevant EC Directives.

2.3.6

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 (hereafter "PBA 1992") consolidates and improves upon the previous Badgers Act 1973, Badgers Act 1991, and Badgers (Further Protection) Act 1991. Under the PBA 1992 (except when holding a licence to do so) it is illegal for a person to wilfully; kill, injure, take, possess, sell, or otherwise cruelly treat a badger. It is also illegal to dig out, damage, destroy, or obstruct entry to setts (including by use of dog(s)). Further information on offences, exceptions, and penalties are listed on the PBA 1992 on legislation.gov.uk.

3 Methodology

3.1 INTRODUCTION

This document reports protected species surveys and provides an Ecological Impact Assessment. It has been produced with reference to relevant guidance, most notably:

- Guidelines for Ecological Report Writing (CIEEM, 2017);
- Biodiversity – Code of Practice for Planning and Development (BS 42020:2013¹);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018); and
- Biodiversity Net Gain (BNG): good practise principles for development (CIRIA, CIEEM and IEMA, 2016).

The following sections summarise the approaches used to review existing data, and to undertake appropriate field surveys to scope and inform an Ecological Impact Assessment (EclA) for the scheme. Where further surveys are considered necessary, this is identified in section 5.

3.2 DESK SURVEY

The following data sources were consulted to assess the potential for the application site to support protected or notable habitats/species:

- Aerial photos, Ordnance Survey maps, and the MAGiC website (<http://magic.defra.gov.uk/>): These were used to identify habitat types including priority habitats, suitability for particular species/groups, and the locality of nationally and internationally designated sites;
- Natural England (NE) open source protected species and habitat survey data; and
- Historical biological records: species and locally designated site records within 2km of the site were provided by the Suffolk Biodiversity Information Service (SBIS; Appendix A2).

From this exercise, it was concluded that the following legally protected species/groups may be present on the site and/or land immediately adjacent to it:

- Amphibians² and reptiles³ including great crested newts (GCNs) (*Triturus cristatus*), toads (*Bufo bufo*), and grass snake (*Natrix helvetica*),
- Mammals including badgers (*Meles meles*)⁴ and bats⁴;
- Breeding birds⁵ including Red and Amber status⁶ species; and
- S. 41⁷ list habitats such as hedgerows, and species such as hedgehog (*Erinaceus europaeus*) and Lepidoptera (butterflies and moths).

In the context of the landscape setting, scale of the application site, and unknown nature of the development, the 'Zone of Influence' of the scheme is considered restricted to habitats on the site and species within 250m of the site boundary unless identified otherwise.

¹ BSI Standards publication BS 42020:2013 Biodiversity – Code of practice for planning and development.

² GCNs and all species of bats receive full protection under the WCA 1981 and Habitats Regulations 2017.

³ Widespread amphibians and reptiles receive partial protection under the WCA 1981.

⁴ Badgers and their setts are afforded protection by the PBA 1992.

⁵ All wild birds, their nests and eggs are protected under the WCA 1981 (as amended), level of protection varies per species.

⁶ The conservation statuses of UK bird species are listed within the Birds of Conservation Concern 4 (Eaton *et al.*, 2015).

⁷ S. 41 of the NERC Act 2006 lists 'habitats and species which are of principal importance for the conservation of biodiversity in England'.

3.3 FIELD SURVEY

A site walkover was undertaken on the 26 July 2022 to 1) record habitats present, and 2) assess the value of the habitats present for protected and notable species. A list of vascular plants and a description of the vegetation was made, including the location and extent of any Schedule 9 (WCA 1981) plants.

3.3.1 *Habitats and vascular plants*

The site was walked with all distinct vegetation and habitat types and any features of interest identified using the Phase 1 Habitat Survey methodology (JNCC, 2010). Care was taken to record as many species as possible.

3.3.2 *Amphibians and reptiles*

a) Amphibians

A large garden pond P1 (Figure 2; Photo 10) was assessed for its suitability to support GCNs using the Habitat Suitability Index (HSI) method as developed by Oldham *et al.* (2000). Two more ponds P2 (Photo 11) and P3 were found to be dry and unsuitable whilst no access was secured to assess two further ponds (P4 and P5) within 250m of the site (but outside of the applicant's landholding).

The terrestrial habitat suitability of the site was assessed with respect to refugia, and foraging habitat based on the known habitat preferences of GCNs and widespread amphibians such as common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*), and common toad (*Bufo bufo*).

b) Reptiles

Habitats on and around the application site were assessed with respect to the known foraging and refuge preferences of widespread reptile species.

3.3.3 *Bats*

a) Preliminary Roost Assessment (PRA)

The existing barn was assessed with regards to its suitability for supporting roosting bats with reference to the NE Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Bat Conservation Trust (BCT) "Bat Surveys: Good Practice Guidelines, 3rd edition" (Collins, 2016).

b) Tree Roost Assessment

Existing trees were visually checked to assess their Bat Roosting Potential (BRP) using the following criteria:

1. All potential roosting cavities (e.g. natural cavities, rot holes, woodpecker holes, splits, peeling bark) were inspected from the ground, using binoculars where necessary;
2. All potential niches would be assigned a category according to Bat Conservation Trust (BCT) protocols (Collins, 2016). These categories are listed below:
 - High Suitability: Trees with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;
 - Moderate Suitability: Trees with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation;

- Low Suitability: A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential. However, the tree(s) are of a size and age that elevated surveys may result in features being found; or features which may have limited potential to support bats; and
 - Negligible Suitability: Trees with negligible bat roost potential.
3. Where potential niches existed, niches below 5m high were physically inspected, using ladders where appropriate. Any cavities with the potential to support roosting bats were inspected with a SeeSnake endoscope and/or a small LED torch as necessary; and
 4. All potential roosting niches were checked for the presence of bats (alive or dead), faecal staining, fur and/or scratch marks around the entrance and droppings within the cavities or attached to the trunk/bough below the entrance.

c) Dusk emergence surveys

Dusk emergence surveys of the barn were undertaken (21/08/22 and 13/09/22) as per the following methodology:

- The emergence surveys commenced 15 minutes prior to and for up to 1.5 hours after sunset to cover the main emergence period and when some bats may return;
- Bat activity such as bats leaving or returning to roost within buildings on site was recorded. In addition, commuting bats and foraging bats were recorded;
- Numbers and species of bats were recorded to determine the significance of any roosts identified;
- Ecologists used full spectrum Wildlife Acoustic Echo Meter Touch 2 Pro and Elekon Batlogger M full spectrum detectors;
- A FLIR Scion OTM266 thermal scope was used during both surveys; and
- A Sony camcorder with Nightshot function and an IR illuminator was used to monitor a known roost during the first emergence survey.

d) Foraging and commuting habitat

Consideration was given to the value of any potential foraging and commuting habitats (e.g., hedgerows and grassland) on the application site (Collins, 2016).

3.3.4 *Nesting birds*

The value of the site was assessed in relation to nesting birds. This was supplemented with field records of birds seen or heard within the site, or nests observed.

3.3.5 *Badger*

The application site and adjacent habitats were surveyed for evidence of badger activity including setts, day beds, latrines, diggings/snuffle holes, paths/runs, scratching posts, hair, and footprints. Any potential sett found was then assessed for evidence of recent use by badger and classified as per current guidance (Scottish Badgers, 2018).

3.3.6 *S.41 habitats and species*

The site was surveyed to determine the presence of any S. 41 habitats such as native species-rich hedgerows. The site's suitability for S. 41 list species such as hedgehog was assessed based on their habitat preferences.

3.3.7 *Non-native invasive plant species*

The site was inspected for Schedule 9 species such as Japanese knotweed and giant hogweed.

3.4 SURVEY CONSTRAINTS

Given the nature of the habitats present on site and the footprint of proposed works, the timing of the survey visit was considered appropriate for the walkover survey.

3.5 SURVEYORS

The building inspection, pond HSI assessments and site walkover were undertaken by Christian Whiting and Alex Gregory BSc (Hons).

Christian Whiting BSc (Hons) MSc MCIEEM MEECW has over 20 years' experience working as an ecologist and holds NE survey licences for bats (2015-14745-CLS-CLS – Bat Survey Level 2, barn owl (CL29/00213), and GCNs (Level 1 licence 2015-17633-CLS-CLS). He is a Registered Consultant (Registration RC089) on NE's Bat Low Impact Class Licence.

He is registered on the NE water vole (*Arvicola amphibius*) Developers Class Licence CL31 (Intentional disturbance of water voles and damage/destruction of water vole burrows by means of 'Displacement') and the Environment Agency's and IDB water vole organisational and class licences respectively. His main areas of expertise are bats, vascular plants, amphibians and reptiles, otter (*Lutra lutra*) and water vole.

Christian was assisted on the bat emergence surveys by experienced unlicensed surveyors Jill Wylie and Jake Brendish.

3.6 ASSESSMENT

Impacts and effects upon habitats and species are assessed with reference to the CIEEM Guidelines for Ecological Impact Assessment (2018) and are reported in Section 5, based on the baseline conditions reported in Section 4.

The assessment includes potential impacts upon habitats and species during the construction and operational phases of the scheme. It considers positive and negative impacts, their extent, magnitude and duration, frequency and timing, and reversibility.

4 Results

4.1 INTRODUCTION

This chapter summarises the results of the desk and field surveys.

4.2 BASELINE ECOLOGICAL CONDITIONS - DESK STUDY

4.2.1 *Designated sites*

Any nationally designated sites (e.g. National Nature Reserves) located within 5km of application site are listed in Table 4.1. There are no locally designated sites (e.g. Local Nature Reserves) within 2km and internationally designated sites (e.g. Ramsar) within 13km of the application site.

Table 4.1 Relevant designated sites

Site name	Site designation(s)
Lingwood Meadows, Earl Stonham	SSSI
Mickfield Meadow	SSSI

Nationally designated sites

Lingwood Meadows SSSI comprises two floristically rich, old meadows and is one of the few remaining examples of unimproved grassland in Suffolk. In addition to grasses, the site supports over 50 species of plant including the nationally scarce sulphur clover (*Trifolium ochroleucon*). A tall hedge surrounding the meadows contains many tree and shrub species which adds further diversity and helps prevent spray drift from adjacent fields, whilst two ditches help drain water from the site.

Mickfield Meadow SSSI is a small, traditionally managed meadow which supports a herb-rich flora once typical of Suffolk but now rare. The site supports a wide variety of herbs and grasses, including snake's head fritillary (*Fritillaria meleagris*).

The site lies within a SSSI Impact Risk Zone but does meet any of the criteria considered to pose a significant risk to ecological features of the designated sites.

4.2.2 *Priority habitats*

Assessment of the MAGiC Map database indicates that no priority habitats exist within 250m of application site boundary.

4.2.3 *SBIS Species Records*

No protected or notable species records exist for within the property site boundary. Table 4.2 identifies, where data resolution allows, species records within 250m (**in bold**) or 2km of the application site boundary.

Table 4.2 Protected/notable species within 2km of the site.

Scientific name	Common name	Legal/conservation status
Amphibians & reptiles		
<i>Lissotriton vulgaris</i>	Smooth newt	Sch. 5
<i>Natrix helvetica</i>	Grass snake	Sch. 5; S. 41
<i>Rana temporaria</i>	Common frog	Sch. 5
<i>Triturus cristatus</i>	Great crested newt	EPS; Sch. 5; S. 41
Bats		
<i>Myotis nattereri</i>	Natterer's	Sch. 5
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	Sch. 5
<i>Plecotus auritus</i>	Brown long-eared	Sch. 5; S. 41
Birds		
<i>Alauda arvensis</i>	Skylark	Red Status; S. 41
<i>Apus apus</i>	Swift	Amber Status
<i>Chloris chloris</i>	Greenfinch	Red Status
<i>Delichon urbicum</i>	House martin	Amber Status
<i>Emberiza citrinella</i>	Yellowhammer	Red Status; S.41
<i>Falco tinnunculus</i>	Kestrel	Amber Status
<i>Linaria cannabina</i>	Linnet	Red Status
<i>Muscicapa striata</i>	Spotted flycatcher	Red Status; S. 41
<i>Passer domesticus</i>	House sparrow	Red Status; S. 41
<i>Passer montanus</i>	Tree sparrow	Red Status; S. 41
<i>Perdix perdix</i>	Grey Partridge	Red Status
<i>Prunella modularis</i>	Dunnock	Amber Status
<i>Pyrrhula pyrrhula</i>	Bullfinch	Amber Status
<i>Streptopelia turtur</i>	Turtle dove	Red Status; S. 41
<i>Strix aluco</i>	Tawny owl	Amber Status
<i>Sturnus vulgaris</i>	Starling	Red Status; S. 41
<i>Troglodytes troglodytes</i>	Wren	Amber Status
<i>Turdus philomelos</i>	Song thrush	Red Status; S. 41
<i>Tyto alba</i>	Barn owl	Sch. 1
Other mammals		
<i>Erinaceus europaeus</i>	Hedgehog	S.41
<i>Lepus europaeus</i>	Brown hare	S. 41
<i>Meles meles</i>	Eurasian badger	PBA 1992
<i>Micromys minutus</i>	Harvest mouse	S. 41
Invertebrates		
<i>Lucanus cervus</i>	Stag Beetle	Sch. 5; S. 41
<i>Satyrrium w-album</i>	White letter hairstreak	RLGB.EN; Sch. 5; S. 41

4.2.4

Natural England open source GCN records

Positive GCN eDNA records (dated 2019) exist c. 3.6km south of the proposed development site, which is outside the normal dispersal range of the species.

4.3 BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY

4.3.1 *Habitats and vascular plants*

Descriptions of the habitats and the characteristic plants species present are provided below, with photos provided in Appendix A1.

a) Built environment

The building proposed for conversion is a large timber-framed barn (Photos 1 to 6) set on a brick plinth, with a corrugated metal roof. The barn has ivy (*Hedera helix*) on the walls in some locations (e.g. south and north elevations). Two smaller lean-tos (store buildings) are attached to the southern aspect of the barn, both have mono-pitched roofs; one of red pantiles and the other of corrugated metal.

b) Managed grassland

The barn is situated within an area of grassland that is kept short by frequent mowing. The sward is dominated by common grasses, such as perennial ryegrass (*Lolium perenne*) cock's-foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), and false brome (*Brachypodium sylvaticum*), and forbs, including selfheal (*Prunella vulgaris*), creeping cinquefoil (*Potentilla reptans*), common nettle (*Urtica dioica*) and broad-leaved dock (*Rumex obtusifolius*). No rare or notable plant species were recorded.

d) Trees

The garden boundaries are marked by a combination of broadleaved trees and conifers (Photos 8 and 9), with numerous ash trees along the southern garden boundary and a length of Leyland cypress (*Cupressus x leylandii*) hedgerow along the northern garden boundary.

Numerous broadleaved trees have been planted near the eastern garden boundary, with horse chestnut (*Aesculus hippocastanum*), ash, elder (*Sambucus nigra*), and sycamore (*Acer pseudoplatanus*) recorded.

c) Drainage ditch - moat

A moat P1 extends around the edge of the survey area. The ditch was dry at the time of the site walkover. Some dry ponds P2 and P3 exist along the northern site boundary.

4.3.2 *Amphibians and reptiles*

a) Amphibians

i) Ponds

Pond P1 (Photo 10; Figure 2) is the remains of a likely moat located c. 5m west of the barn. P1 is covered by a dense growth of duckweed (*Lemna minor*), which can inhibit oxygen levels due to reduced light availability. Some marginal vegetation is present including yellow flag (*Iris pseudacorus*) and bittersweet (*Solanum dulcamara*). There are several ducks and some moorhen using the moat with a limited amount optimal terrestrial habitat (e.g. meadows, rough grassland with tall sward height, scrub, woodland) located within 250m. As such, the pond was assessed as supporting an Average (0.64) HSI score for GCNs.

Ponds P2 and P3 are located c. 25m to the north and c. 40m north-west of the barn, respectively. Both ponds were dry at the time of the site walkover and rarely hold water (Landowner, *pers. comm.*). P2 is heavily shaded (Photo 11) and no macrophytes were present with only terrestrial species growing. Pond P3 (Photo 12) was also dry and is

likely to be the remains of a ditch that probably ran the entire length of the northern site boundary. Both P2 and P3 were assessed as supporting poor GCN habitat suitability.

ii) Terrestrial habitat

The site largely consists of short grassland, which offers suboptimal foraging habitat for amphibians, likely restricted to occasional individuals foraging on damp, warm nights. Boundary trees/hedgerows and ditches/moat offer some potential foraging and dispersal opportunities.

b) Reptiles

The grassland is kept short with regular mowing and therefore currently offers suboptimal foraging and refuge habitat for reptiles, e.g. lacks the mosaic of scrub and rough grassland favoured by species such as slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*). Some very limited potential refuge and dispersal habitats exist around the site boundaries (e.g. base of mature trees, hedgerows and ditches) although these are relatively isolated, in what is a largely agricultural landscape, and therefore unlikely to support any animals, except for the occasional grass snake (*Natrix helvetica*), which are more mobile and more able to persist in farmed landscapes.

4.3.3

Bats

a) Preliminary Roost Assessment (PRA)

An interior inspection of the barn (Figure 3) found a light scattering of pipistrelle (*Pipistrellus sp.*) and likely brown long-eared (BLE) (*Plecotus auritus*) droppings on surfaces throughout, with some Natterer's bat (*Myotis nattereri*) droppings present below a vertical gap in a joint on the western wall (Photos 13 and 14) which were confirmed by eDNA analysis. This indicates that low numbers of day roosting bats (of several species) may be using the barn.

Externally, the timber cladding has warped on most elevations, which has some roosting potential for crevice-dwelling species. Overall, the barn was assessed as supporting High bat roosting potential (BRP), with several open joints and gaps in the timber frame present.

b) Tree assessment

No trees with the potential to support roosting bats will be impacted by the proposed development.

c) Bat activity surveys

i) Dusk emergence survey (21/08/22)

The survey was undertaken during suitable weather conditions with no precipitation, 30% cloud cover; wind speeds (BS1) and temperatures of 20°C at the survey start, dropping to 18°C at the end. Sunset was at 20:07. The survey commenced at 19:50 and ended at 21:30, when bat activity ceased.

The first registration of the survey was of a soprano pipistrelle (*Pipistrellus pygmaeus*), which flew from west to east, to the north of the barn at 20:29. At 20:30 two soprano pipistrelles and one common pipistrelle (*P. pipistrellus*) were observed foraging over pond P1.

A common pipistrelle was observed emerging from the main doorway on the north elevation at 20:33. A single BLE was seen at rest on a beam during an internal inspection at 21:09, the bat stayed in the building for the remainder of the survey.

No other bats were recorded within or emerging from the barn with low numbers of common and soprano pipistrelles sporadically recorded either commuting through, and/or foraging within the garden adjacent to the barn, until bat activity ceased at approximately 21:30.

ii) *Dusk emergence survey (13/09/22)*

The survey was undertaken during suitable weather conditions with no precipitation, 55% cloud cover; wind speeds (BS2) and temperatures of 19°C at the survey start, dropping to 17°C at the end. Sunset was at 19:16. The survey commenced at 18:57 and ended at 20:45, when bat activity ceased.

The first registration of the survey was of a soprano pipistrelle, which flew through the survey area from the direction of the farmhouse at 19:32. A common pipistrelle was then seen foraging over pond P1 at 19:34. A single BLE was then observed emerging from an open window on the east elevation of the barn at 19:42.

No other bats were recorded emerging from the barn or seen inside during several inspections (beginning, midway and end).

d) *Static bat detector analysis*

A common pipistrelle was recorded on the Elekon A+ during the first survey with no other species recorded. A BLE was recorded briefly in the barn at 19:42 prior to one being seen emerging from the north elevation.

e) *Commuting and foraging habitat*

The barn is of negligible value to commuting and foraging bats though mature trees along the garden boundaries retain some connectivity to linear features (e.g., hedgerows) in the wider landscape and will provide Moderate value commuting and foraging habitat for bats (Collins, 2016). Bats may also forage for invertebrates over pond P1.

4.3.4

Nesting birds

No evidence of nesting or roosting by barn owl (*Tyto alba*) (Sch. 1) was found in the barn although some stock dove (*Columba oenas*) (Amber Status) and/or wood pigeon (*Columba palumbus*) (Amber Status) nests were recorded, in addition to a wren (*Troglodytes troglodytes*) (Amber Status) nest/roost in a cavity in a joint on the central wall. The dense growth of ivy on the external walls of the barn will also provide further nesting/roosting opportunities for small passerines.

Garden boundary habitats (e.g., mature trees and shrubs) offer potential nesting, foraging and song perch habitat for a range of garden birds including species such as dunnock (*Prunella modularis*) (Amber Status; S. 41 List), song thrush (*Turdus philomelos*) (Red List; S. 41 List) and blackbird (*Turdus merula*). These habitats may also attract winter migrants such as fieldfare (*Turdus pilaris*) (Red Status, WCA1i) and redwing (*Turdus iliacus*) (Red Status, WCA1i).

4.3.5

Badger

No signs of setts/spoil heaps, pathways, scratching posts, snuffle holes, day nests, faeces, guard hairs, or footprints were observed on site.

4.3.6

S. 41 habitats and species

Hedgehogs will forage over the grassland and will seek refuge within the base of trees and ditch along the garden boundary whilst brown hare (*Lepus europaeus*) could inhabit adjacent arable fields and occasionally enter the garden to graze.

Mature trees/shrubs along the garden boundaries and pond P1 could support some S. 41 list invertebrates, including Lepidoptera and Odonata.

4.3.7

Non-native invasive plants

No non-native invasive species were recorded within the survey area.

4.4

GEOGRAPHIC CONTEXT

The geographic context of a feature (Table 4.4) is a useful consideration within an assessment of impacts. The values below are based on the information in table A3.1 informed by expert judgement.

Table 4.4 Feature value based on geographic context

Feature	Value
Managed grassland, trees, hedgerows and pond	Local
Amphibians and reptiles	Local
Bats	Local
Nesting birds	Local
S. 41 habitats and species	Local

5 Assessment and recommendations

5.1 INTRODUCTION

The following section provides a summary description of the proposed development, with an assessment of associated impacts and likely significant effects upon biodiversity.

The assessment and recommendations are based on use of the mitigation hierarchy, which in the first instance aims to avoid impacts. Where impacts cannot be avoided, they should be minimised (through mitigation). Only where impacts cannot be avoided or minimised should there be compensation for biodiversity harm.

Ecological enhancements are suggested, and consideration is given to individual as well as overall net gains or losses of biodiversity.

5.2 DESCRIPTION OF PROPOSED DEVELOPMENTS

Planning permission is being sought to convert (and extend) the barn into a residential dwelling with a courtyard area, two new cart lodges, a driveway and new vehicular access, and general landscaping (including new hedgerow planting). It will require some localised vegetation clearance of grassland to accommodate the barn extension whilst some existing outbuildings will be demolished, and a section of non-native conifer hedge will be removed, to allow for the new driveway and cart lodges. This has the potential to impact upon roosting bats, amphibians, nesting/roosting birds and small mammals.

Recommendations for mitigation, compensation and enhancements are based on the most recent site drawings provided by Tim Moll Architecture and information available at the time of writing and should be updated accordingly as the scheme is subsequently amended.

5.3 FURTHER SURVEYS REQUIRED

It is generally advised that subject to no significant change in site management regimes, and dependent on the species present, baseline survey results remain valid for approximately 12 – 18 months (CIEEM, 2019). Exceptions include where mobile species are/may be present, where site management practices cease or change, or where existing guidance indicates otherwise.

5.4 ASSESSMENT OF IMPACTS

The EclA assessment process (CIEEM, 2018) involves:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects;
- and
- Identifying opportunities for ecological enhancement.

The emphasis in EclA is on the assessment of 'significant effects' i.e. an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In broad terms significant effects

encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species including extent, abundance and distribution.

The ecological features to be subject to detailed assessment in this report are those judged to be important and potentially affected by the project; protected species are included where the development will result in a potential breach of legislation.

5.5 HABITATS AND VASCULAR PLANTS

a) Potential impacts

i) Terrestrial habitats

Vegetation clearance and construction activities will result in the temporary disturbance and permanent loss of small areas of managed grassland beyond the footprint of the existing barn and removal of a relatively short length of non-native conifer hedgerow in the footprint of the new driveway, which is not considered to be ecologically significant.

Accidental damage to mature trees in the garden during the construction phase would be considered a significant effect at the local level.

ii) Aquatic habitats

The construction phase has the potential to damage pond P1 through accidental pollution and siltation. Water quality impacts as a result of inadequate sewerage could impact the pond during the operational phase. Such impacts would have a significant negative effect at the local scale.

b) Mitigation

i) Terrestrial habitats

As good practice, the building contractors site compound (if required) should be located away from boundary habitats (e.g. mature broadleaved trees). Retained trees/shrubs and areas of grassland should also be protected from damage with Heras (or similar) fencing and Root Protection Areas (RPAs) should be used to inform the detailed design.

ii) Aquatic habitats

A contractor Risk Assessment Method Statement (RAMS) or similar should be developed ahead of works commencing to ensure Good Practice measures are used to avoid and/or minimise the risk of pollution. Measures may include, but are not exclusive to:

- Locating any site compounds (including any fuel storage) away from the pond;
- Placing straw bales along the eastern and northern edges of P1; a geotextile can be weighed down on the pond side (e.g. with sand bags to further limit siltation impacts upon the waterbody).;
- Limiting topsoil removal as required and covering topsoil whilst stockpiled;
- Cleaning machinery in designated areas with a sump and re-using wastewater where possible or discharging via a sewer or tanker only;
- Storing chemical and fuels securely within double-bunded bowsers or chemical stores (with a 110% capacity to contain any spillage) away from the pond;
- Using water based, non-toxic and biodegradable chemicals and fuels where possible;
- Mixing and washing chemicals and associated equipment in designated areas with wastewater safely disposed of via mains sewerage or tanker as appropriate;

- Use of biodegradable hydraulic and fuel oils;
- Having adequate site security in place; regularly checking equipment for failures and/or leaks; and
- Keeping spill kits and booms present on the site and ensuring staff are trained in their use.

Further information is available via the Guidance for Pollution Prevention - Works and maintenance in or near water: GPP 5 January 2017 document, produced by Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA) and the Scottish Environment Protection Agency (SEPA)⁸.

c) Residual effects

No significant residual negative effects are anticipated.

5.6

AMPHIBIANS AND REPTILES

a) Potential impacts

Ground-breaking and construction activities, in addition to vegetation clearance, could result in the potential entrapment, injury and mortality of amphibians (including potentially GCNs) through contact with caustic substances (e.g., wet cement), trenches (e.g., sewerage and surface water drainage runs), and movement of stored building materials.

During the operational phase site drainage comprising the use of gully pots and down pipes connecting to closed surface water drainage or those with silt traps can result in animals becoming trapped (Muir *et al.*, 2012) and impact upon amphibians.

Combined, such impacts could result in permanent negative effects upon low-to-moderate numbers of individuals considered a negative effect at the local level.

b) Mitigation

As per 5.5.

Given the relatively limited footprint of the proposal (beyond existing footprint) a Precautionary Working Method could be agreed with the LPA to ensure no wildlife offence occurs (for GCNs).

To avoid impacts upon other amphibians, good practice precautionary methods should be followed for the scheme, to include the following measures:

1. Existing grassed areas should be kept short with regular mowing prior to and during construction.
2. Longer vegetation (e.g. hedgerows) should be cleared sensitively if >300 mm in height and amphibians are active (i.e. early February to October inclusive) as follows:
 - A first cut to be taken to 150mm above ground level with brash raked prior to being removed from site;
 - After at least 1-hour (preferably overnight), a second cut to ground level, and maintained near to ground level until works commence;
3. Excavations should be filled on the same day they are dug or covered overnight with ply boarding and any gaps filled with damp sharp sand;

⁸ <http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf>

4. If this is not feasible access ramps should be created to allow animals to escape and the excavations should be inspected daily and immediately prior to infilling. Any animals (except for GCN) present should be moved into retained hedgerows and/or other boundary habitats providing adequate cover;
5. Footings and concrete slabs should be poured during the morning where possible to ensure it has solidified prior to dusk to reduce the risk of animals coming into contact with wet concrete;
6. Any hand mixing of mortar or concrete should be on ply boarding over a tarpaulin which is folded over the boarding at the end of each day to prevent animals coming into contact;
7. Any excess concrete should be poured into a concrete skip, so it can then set to prevent animals coming into contact.
8. All building materials and waste materials should be stored on hardstanding or stored off the ground on pallets to reduce risk of animals seeking refuge;
9. Should any GCNs (Appendix A4) be encountered, works should stop immediately, and advice be sought from a suitably experienced ecologist. Any other animals should be allowed to move out of the works area, or safely relocated. The poster in Appendix A4 should be erected in the welfare facilities provided for construction staff onsite;
10. If utilised, installed gully pots for surface water drainage should be raised above ground level, sealed or covered with a fine grate cover to prevent entrapment issues. Roadside gullies, if used, should be situated $\geq 100\text{mm}$ from kerbs to maintain function while reducing the probability of animals falling in, OR a wildlife friendly kerb should be installed OR amphibian (gully pot) ladders must be installed into each gully pot⁹; and
11. Downpipes taking water off the roofs should be sealed at ground level by using a leaf and debris screen¹⁰ to prevent amphibians entering drains.

c) Residual effects

With appropriate mitigation, there will be no significant effects during the construction or operational phases.

5.7

BATS

a) Potential impacts

i) Roosting bats

Conversion of the barn will likely result in the permanent loss of day roosts used by low numbers of three bat species including common pipistrelle, BLE and Natterer's.

ii) Light disturbance

Lighting (construction and operational phases) can impact bat commuting and foraging behaviour and increase the risk of predation, which could affect foraging success and population recruitment and is considered a potential significant effect at the local level.

Lighting impacts relate to security lighting external to the buildings, and potentially from spillage of internal lighting once the buildings are in use. In this instance, impacts on retained trees around the site boundary and pond P1 are most relevant.

⁹ <https://www.thebhs.org/the-bhs-amphibian-gully-pot-ladder>

¹⁰ <https://www.drainagepipe.co.uk/leaf-and-debris-gully-110mm-p-D94G/>

iii) Roofing membranes

Research has shown bats can become entangled in modern breathable roofing membranes if used under clay pantiles or peg/plain tiles (Waring *et al.*, 2013) or behind weatherboarding. Without mitigation, the impacts above could result in significant effects at a local level.

b) Mitigation

i) Roosting bats

The destruction of bat roosts will require a NE bat European Protected Species Mitigation (EPSM) licence and measures would be employed to ensure no harm occurs to bats, e.g. use of exclusion bags to allow bats out but not back into roosting niches, supervision of the removal of roof tiles and timber cladding etc.

ii) Light disturbance

Exterior lighting (as well as temporary security lighting during the construction phase) design must minimise lighting impacts upon retained natural habitats, including boundary trees and pond P1, should follow current guidance as necessary^{11,12}:

- *Type of lamp (light source)*: Light levels should be as low as possible as required to fulfil the lighting need. Lighting should have a maximum of 7.5 to 10 lux and LED lights should be used using the warm white (or amber) spectrum, with peak wavelengths >550nm (2700 or 3000°K) and no UV component; and
- *Lighting design*: Lighting should be directed to where it is needed, with minimal horizontal spillage towards retained habitats including mature broadleaved trees in the garden and pond P1. This can be achieved by restricting the height of the lighting columns/fixtures and the design of the luminaire, including the following measure:
 - ❖ Light columns/fixtures in general should be as short as possible as light at a low level reduces the ecological impact.
 - ❖ Luminaires with an upward light ratio of 0% should be mounted on the horizontal i.e. with no upward tilt.
 - ❖ If taller lights are required, and as a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill; and
 - ❖ PIR movement sensors and timers should be used to minimise the 'lit time'.

iii) Roofing membranes

Bat friendly roofing felt (e.g., Type 1F or a breathable sarking board e.g. Hunton Sarket or Pavatex Isolair) should be used if handmade clay pantiles or plain tiles are proposed for roofing materials and behind weatherboarding. Until recently non-bitumen coated roofing membranes (NBCRM) would not be licensed by Natural England. However, a NBCRMs which have passed a *snagging propensity test* as defined by Natural England and the Bat Conservation Trust¹³ may be approved as part of an EPS Mitigation licence application.

If tight fitting tiles (e.g., interlocking pantiles or machine-made plain tiles) or slates or concrete weatherboarding are used, NBCRMs can be used if gaps are less than 5mm or can be sealed with sealant to ensure bats cannot enter and come into contact with the NBCRM.

¹¹ <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting>

¹² www.eurobats.org/sites/default/files/documents/publications/publication_series/WEB_DIN_A4_EUROBATS_08_ENGL_NVK_28022019.pdf

¹³ <https://www.bats.org.uk/our-work/buildings-planning-and-development/non-bitumen-coated-roofing-membranes>

c) Residual effects

The conversion of the barn will result in the destruction of bat day roosts, which will require compensation.

5.8

NESTING BIRDS

a) Potential impacts

The conversion of barn during the main nesting season (1st March to 31st August) could result in the disturbance and potential destruction of active nests. Increased noise levels (during construction and operational phase) could also affect the ability of birds to hold territories during the breeding season whilst accidental damage to nearby mature trees could also affect breeding success and/or result in the destruction of active nests.

The destruction of active nests would be considered a significant negative effect (as an offence under wildlife legislation) at the local level.

b) Mitigation

As per 5.5 and 5.6.

If building works are proposed to commence during the bird breeding season (e.g. March to August inclusive for most species) a nesting bird check is required prior to works commencing. If any nests are found, exclusion zones must be established until young have fledged. The builder's compound (if required) should be sited on the existing gravel driveway to the northwest of the barn and away from any boundary habitats.

c) Residual effects

The conversion of the barn will result in the residual net loss of nesting opportunities which should be compensated.

5.9

OTHER S. 41 LIST HABITATS AND SPECIES

a) Potential impacts

Vegetation clearance will result in temporary disturbance of and discrete losses of potential refuge and foraging habitats for hedgehogs. During construction, hedgehogs could potentially fall into open trenches resulting in entrapment and possible injury and mortality of individuals due to falling in or becoming in contact with caustic substances such as fresh concrete.

Erection of ecological barriers (e.g., timber panel fencing and brick walls) would affect foraging access for animals. In combination such impacts would be considered to result in a negative ecological effect at the local level.

b) Mitigation

Habitat avoidance and mitigation as per section 5.5 and 5.6 - use of protective fencing for retained habitats (e.g. boundary trees and grassed areas).

Site clearance should always consider the potential presence of hedgehogs with vigilance, with no clearance of dense vegetation (if required) undertaken when temperatures are regularly below 6°C. Animals encountered at other times should be moved to suitable cover, e.g. under the trees in the eastern part of the garden.

During construction, concrete should be poured early in the day or covered with ply boarding or membrane overnight to prevent animals coming into contact. Trenches should be covered overnight, or mammal ladders (large rough planks placed at shallow angles) placed to allow animals escape. Uncovered trenches must be checked daily, and any animals encountered be relocated out of the works area.

The use of any timber panel fences should be avoided in order to allow the free movement of hedgehog to forage in the garden. If close board fencing were to be installed, then at least one hedgehog highway¹⁴ should be provided at either end of the fencing run with signage¹⁵

c) Residual effects

No significant effects are anticipated.

5.10

COMPENSATION

Residual significant negative effects upon habitats and species which require compensation relate to the conversion of the barn which will result in the permanent loss of day roosts used by three bat species, as well as loss of nesting/roosting opportunities for birds.

Bat boxes – Some bat boxes will need to be incorporated into the walls (x4 No.) of the proposed barn conversion and some access points (x4) should be created into the ridge with 3x bat boxes erected on trees suitable for the species present (Appendix A5). Bat friendly roofing membrane must be used under any clay pantiles on the roof of the converted barn to prevent bat entanglement. Access into the roof void of at least one of the cart lodges should be created with x2 bat boxes installed to provide niches for BLE and Natterer's bats.

Full details of compensation required will be agreed with Natural England as part of a bat licence application

Bird boxes - Small passerine nest boxes for wren and robin (x2 combined robin/wren boxes) should be erected on the converted barn and/or suitable mature trees within the applicant's landholding (Appendix A6).

To be consistent with planning policy, biodiversity gains could be delivered through suggested enhancement measures (see section 5.12 below).

5.11

CUMULATIVE EFFECTS

The Mid Suffolk District Council planning website was searched (12/08/2022) for other relevant planning applications within a 1km buffer of the application site dating back two years. Refused applications were not considered in relation to potential cumulative ecological effects. Applications considered relevant are listed below:

- Full planning permission was granted (DC/21/06261) for the erection of a single dwelling (following demolition of existing dwelling), at Isosceles House, Mickfield Road, Stonham Aspal. No ecology report was submitted with the application.

¹⁴ [Link your garden with a hedgehog highway \(hedgehogstreet.org\)](http://hedgehogstreet.org)

¹⁵ [Link your garden with a PTES hedgehog highway sign](#)

- Full planning permission was granted (DC/22/01572) for an application to change the use of an existing outbuilding into part residential annex, part storeroom, with internal and external alterations, at Andrews Church, Debenham Road, Mickfield. No ecology report was submitted with the application.
- A decision is pending (DC/22/02521) for the erection of a single dwelling, to be occupied by an agricultural worker, at Mill Green Farm, Debenham Road, Stonham Aspal. A Preliminary Ecological Appraisal Report (PEAR) submitted with the application concluded that the site supports suitable habitat for bats, breeding birds, GCNs, and reptiles, although ecological impacts were considered to be small. Mitigation, compensation, and biodiversity enhancement measures were suggested.

Due to the nature and scale of the search results, in combination with the proposed scheme, cumulative effects are considered unlikely.

5.12

ENHANCEMENT OPPORTUNITIES

Recommended mitigation and compensation measures will address biodiversity losses from the scheme. A minimum of 5 of the 7 following enhancement measures (Table 5.1) should further be implemented to maximise biodiversity benefits delivered as part of the scheme.

Table 5.1 Biodiversity enhancement options

Feature	Enhancement suggestion
Native hedgerows	<p>1. Where new hedgerows are proposed, a minimum of 6 native shrub species should be used to maximise the biodiversity value of each new hedge, e.g. seasonal sources of nuts, fruit and berries in autumn and winter for birds and mammals:</p> <ul style="list-style-type: none"> • Cherry plum (<i>Prunus cerasifera</i>); • Common dogwood (<i>Cornus sanguinea</i>); • Crab apple (<i>Malus sylvestris</i>); • Field maple (<i>Acer campestre</i>); • Hawthorn (<i>Crataegus monogyna</i>); • Hazel (<i>Corylus avellana</i>); • Holly (<i>Ilex aquifolium</i>); • Hornbeam (<i>Carpinus betulus</i>); • Native roses (<i>Rosa sp.</i>) (NOT Japanese rose <i>Rosa rugosa</i>); • Spindle (<i>Euonymus europaeus</i>); and • Wild privet (<i>Ligustrum vulgare</i>). <p>Dutch elm disease resistant elm cultivars¹⁶ could be planted within the new hedges to provide habitat for invertebrates such as the white-letter hairstreak (<i>Satyrrium w-album</i>) butterfly the caterpillars of which feed on the leaves.</p>

¹⁶ <https://resistantelms.co.uk/elms/ordering/>

Ornamental planting	<p>2. Any ornamental planting should utilise nectar rich plants for the benefit of pollinators and associated predators (e.g., foraging bats and hedgehogs).</p> <p>Planting should include nectar rich climbers such as traveller's joy (<i>Clematis vitalba</i>) and honeysuckle (<i>Lonicera periclymenum</i>), which could be planted at 5ft intervals along proposed hedgerows and/or trained up fences, posts, or trellises.</p>
Suffolk heritage fruit cultivars	<p>3. Some heritage fruit trees¹⁷ (minimum of 6) could be planted in the garden to the east of the barn to create a small fruit orchard.</p>
Bats	<p>4. Two additional multi-chamber (Appendix A5) or colony boxes could be mounted on the south and/or west elevation of the converted barn for use as hibernation roosts.</p>
Birds	<p>5. Access into at least 1 of the 2 proposed cart lodges would provide nesting opportunities for swallow. Nest cups¹⁸ could be installed along the ridge and on the gable ends (location to be agreed with suitably experienced ecologist).</p> <p>6. Three additional bird boxes (Appendix A6) could be mounted either on suitable mature trees or, in the case of starling nest boxes - erected on the east elevation of the converted barn and/or new cart lodges.</p>
Amphibians and reptiles	<p>7. An area of long grass could be left to establish between the west gable end of the barn and the pond P1 and a small amphibian hibernaculum created using builders' rubble and broadleaved logs (Appendix A7).</p>

Peat based composts will not be used for any planting or landscaping in order to preserve existing carbon stores and avoid damage to sensitive habitats.

5.13

CONCLUSIONS

The proposed mitigation, compensation and enhancement measures should ensure the proposed scheme avoids net losses of biodiversity and will maximise biodiversity enhancements provided within the application site boundary.

Measures proposed should be secured through appropriate planning conditions as per the British Standard (BS 42020:2013¹). These could include conditions specific to bats (D.6.2 Submission of a copy of the NE mitigation licence), nesting birds (e.g. BS 42020:2013 D.3.2.1) and a Biodiversity Method Statement (BS 42020:2013 D.2.1) used to detail mitigation, compensation and enhancement implementation, and associated monitoring

¹⁷ <https://www.applesandorchards.org.uk/buy-fruit-trees/suffolk/>

¹⁸ <https://www.nhbs.com/no-10-schwegler-swallow-nest>

6 References

CIEEM (2017) Guidelines for Ecological Report Writing. Second edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2019) Advice Note: on the lifespan of ecological reports and surveys.

CIRIA, CIEEM and IEMA (2016) Biodiversity Net Gain: good practice principles for development.

Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition), Bat Conservation Trust, London.

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341

English Nature (2004) Bat mitigation guidelines

JNCC (2010) Handbook for Phase 1 habitat survey – A technique for environmental audit, JNCC, Peterborough.

Muir D. (2012), Amphibians in drains project report summary. *Biodiversity News*, 59, 16-18.

Oldham, R., Keeble, J., Swan, M. and Jeffcote, M. (2000), Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), pp. 143-155.


Scottish Badgers. (2018) Surveying for Badgers: Good Practice Guidelines. Version 1.

Waring, S., Essah, E., Gunnell, K. and Bonser, R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. *Architecture & Environment*, 1 (1). pp. 1-13.

Figures



Legend

 Application site boundary

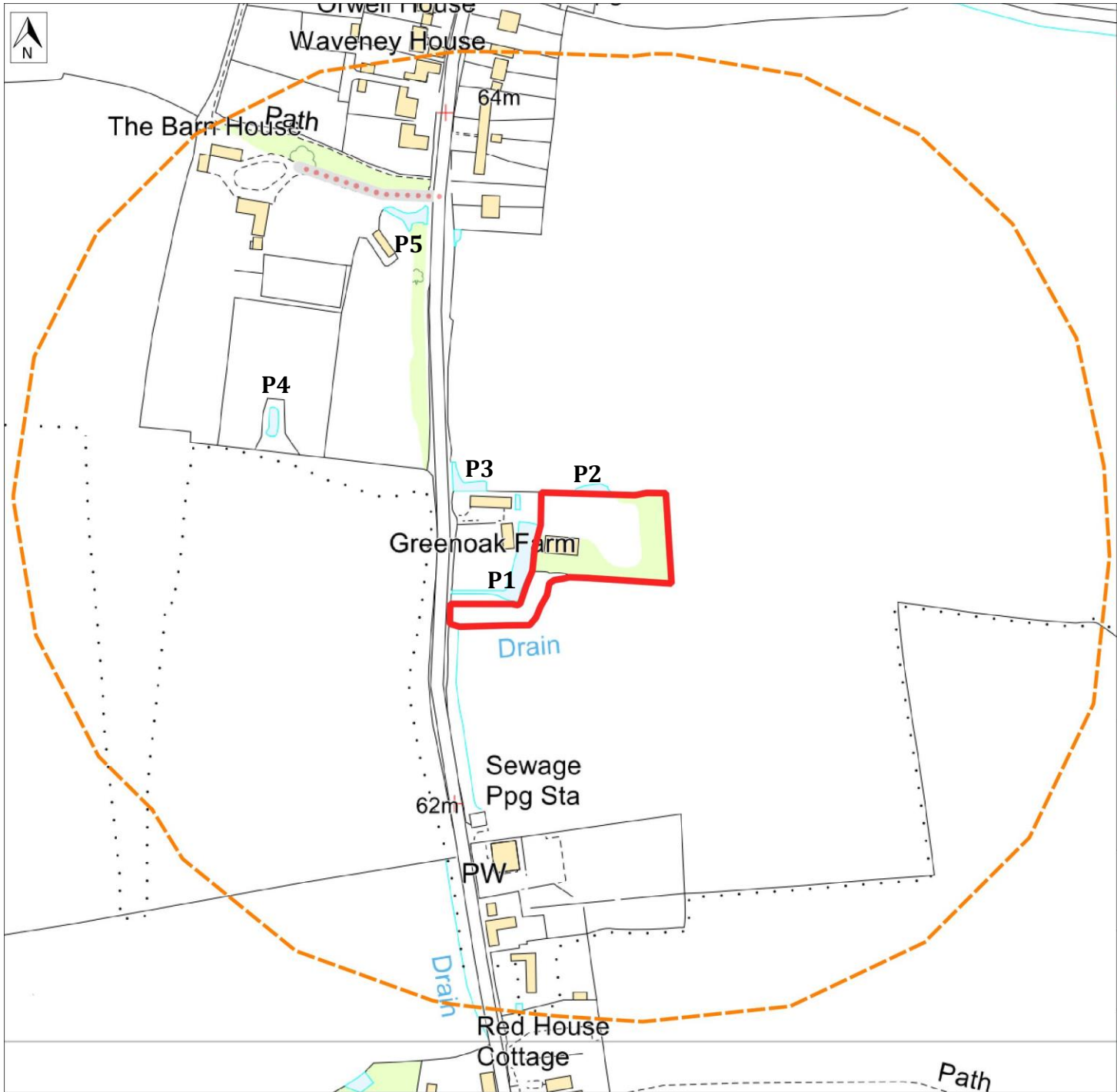


Client: Mr and Mrs Keep

Project: Green Oak Farm, Mickfield, Suffolk

Drawn:	Date:	Drawing Ref:
AG	31/08/22	GREENOAKFARMMICKFIELD/01

Figure 1 Site location plan



Legend

- application site boundary
- 250m buffer
- Pond



Client: Mr and Mrs Keep

Project: Green Oak Farm, Mickfield, Suffolk

Drawn:	Date:	Drawing Ref:
AG	31/08/22	GREENOAKFARMMICKFIELD/02

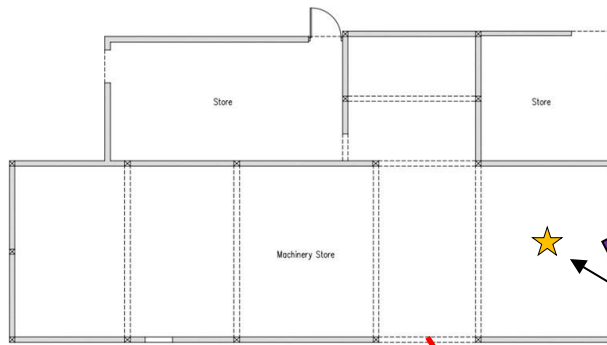
Figure 2 Ponds location plan



Examples of bat droppings found scattered on surfaces throughout barn during initial building inspection



Natterer's bat droppings (confirmed by eDNA analysis) found below vertical opening in joint on western wall of barn during building inspection



1x BLE seen at rest in barn during first emergence survey

Legend

- ➔ BLE emergence/flight
- ★ BLE at rest
- ➔ Common pipistrelle emergence/flight
- Natterers bat roost location



1x BLE observed exiting barn from open window on north elevation at 19:42 during second emergence survey



1x common pipistrelle observed exiting barn from main doorway on north elevation at 20: 33 during first emergence survey

Client: Mr and Mrs Keep

Project: Green Oak Farm, Mickfield, Suffolk

Drawn:	Date:	Drawing Ref:
AG	15/08/22	GREENOAKFARMMICKFIELD/03

Figure 3 Building inspection and bat emergence survey results

Appendices

Appendix A1 Photos



Photo 1 Northeast elevation of barn



Photo 2 Northwest elevation of barn



Photo 3 Southeast elevation of barn



Photo 4 Southwest elevation of barn



Photo 5 Internal view of main barn



Photo 6 Internal view of attached store/lean-to section of barn



Photo 7 Managed grassland area to the east of barn



Photo 8 Trees along the southern garden boundary



Photo 9 Conifers along the northern garden boundary



Photo 10 Pond P1 to the west of barn



Photo 11 Pond P2



Photo 12 Pond P3

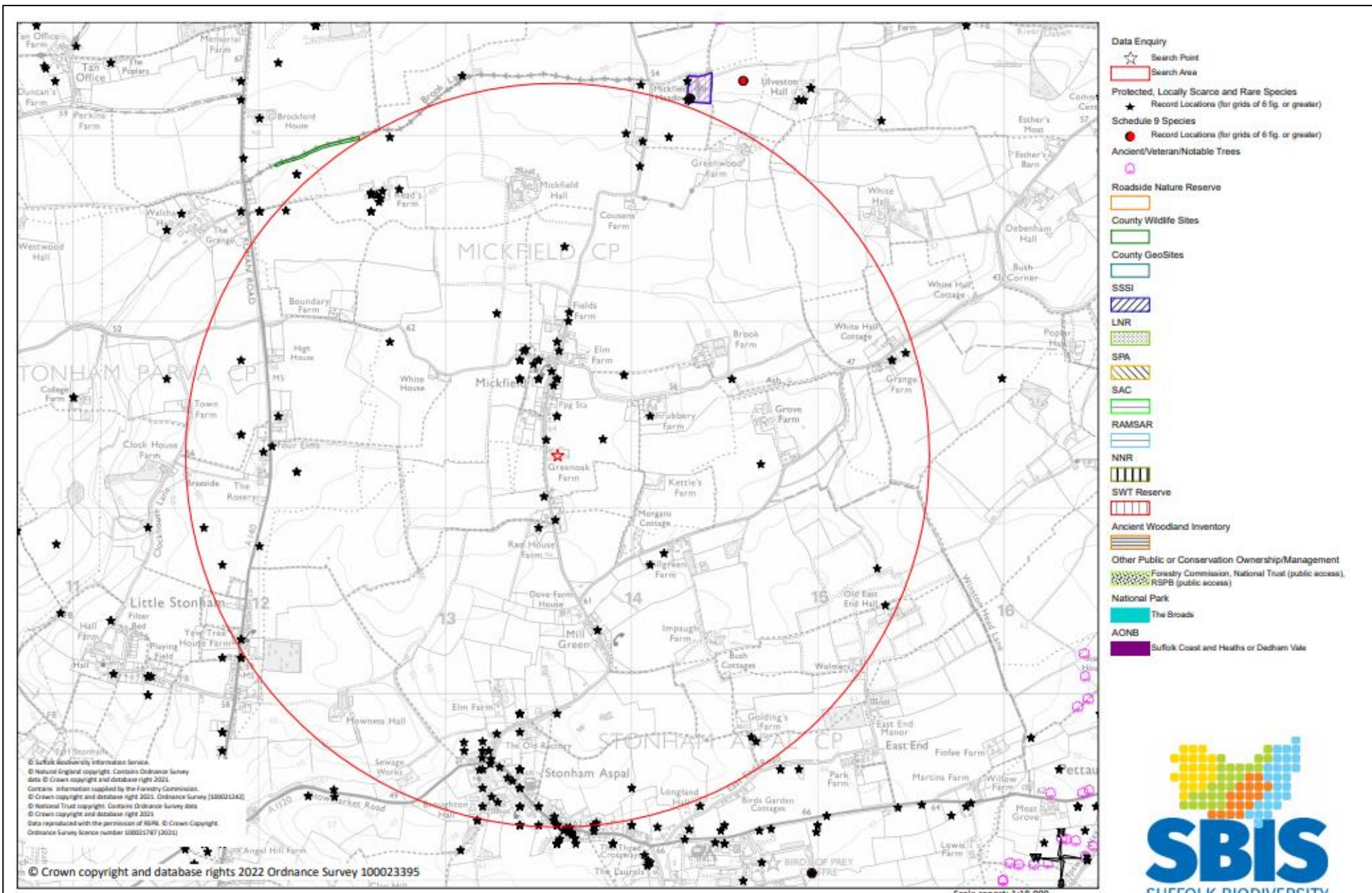


Photo 13 Bat droppings below open joint (roost) on internal wall (west)



Photo 14 Bat droppings on plastic tarpaulin below roost location on west wall

Appendix A2 SBIS data map



MHE Consulting (Greenoak Farm, Mickfield TM 13602 61287) 2km Data Enquiry

Date: 26/08/2022 | Drawn by: Andy Mercer



Appendix A3 EclA criteria

A3.1 General criteria for geographic context/value

Designation	Example
International	<ul style="list-style-type: none"> • SPA, SAC and Ramsar sites and the features that they have been designated for. • A sustainable area of habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • A sustainable population of an internationally important species e.g. UK Red Data Book (RDB) species or European Protected Species (EPS) of unfavourable conservation status in Europe (e.g. Annex II species: bats, GCNs etc.), of uncertain conservation status or of global conservation concern in the UK BAP.
National	<ul style="list-style-type: none"> • SSSI or a discrete area that meets the selection criteria for designation. • A sustainable area of priority habitat identified included on the S. 41 NERC Act list or smaller areas of such habitat that are essential to maintain the viability of a larger whole. • A sustainable population of priority species (listed under S. 41 of the NERC Act 2006). • A sustainable population of a nationally important species i.e. RDB species not included in above category but which is listed on Schedules 5 or 8 of the WCA 1981 (as amended). Also, sites supporting a breeding population of such species or supplying a critical element of their habitat requirements. • A sustainable population of uncommon or threatened Annex IV EPS species at a UK level. • A nationally scarce species (occurs in 30-100 10km squares in the UK) that has its main UK population within the district.
County	<ul style="list-style-type: none"> • A viable area of habitat identified in the county BAP. • A County Wildlife Site. • A sustainable population of common or non-threatened Annex IV EPS species at a UK level. • A Nationally Scarce species that does not have its main population within the county. • A sustainable population of a BAP species not included in the 'national' category above for which a county Action Plan exists.
Local	<ul style="list-style-type: none"> • Individual members of local populations of priority or other nationally/internationally important species which are not in themselves key for maintaining a sustainable population (e.g. individual dog otter passing through area with no holts or resting sites). • Other habitats and species not in the above categories but are considered to have some value at the district/borough level.

Appendix A4 GCN notification signage

Great Crested Newt

If seen by any employee, works must cease immediately and an ecologist be contacted for advice

It is an offence to intentionally or recklessly disturb, injure or kill great crested newts

Further information can be found at www.arguk.org



https://secure1.telegraph.co.uk/multimedia/archive/03435/great_crested_newt_3435922k.jpg

Appendix A5 Bat boxes



Vincent Pro Bat Box



Woodstone multi-chamber box



Schwegler 2F

The Kent bat box

Simple to construct, self-cleaning and low maintenance.

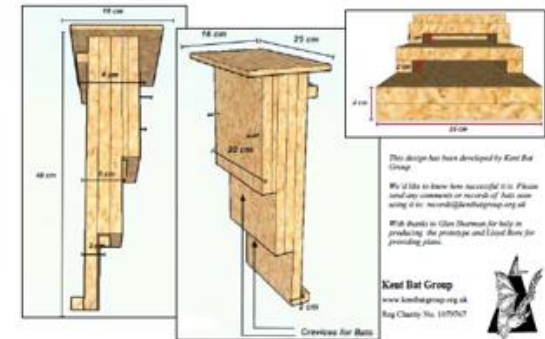
The only critical measurement is the width of the crevices—these should be no larger than suggested. Other measurements are approximate.

Materials and construction

Box to be made from untreated rough-sawn timbers
 Timber should be c.20mm thick
 The box should be rainproof and drought-free
 Crevices can be between 15 and 25 mm wide
 Fixing may be by use of brackets, durable bands or wires

Location

Boxes are best fixed as high as possible in a sheltered wind-free position, exposed to the sun for part of the day.
 They can be fitted to walls, other flat surfaces or trees
 A clear flight line to the entrance is important



Kent bat box

Appendix A6 Bird boxes



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Print



RSPB Sparrow terrace nest box

Product ID: R407816

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★★★★☆ [Read all reviews](#)

Provides three separate nest boxes in one FSC® certified timber terrace, each with its own 32mm entrance hole. Beautifully made in the UK.

RSPB nest boxes provide a safe and snug place for birds to roost and nest. Unlike cheaper alternatives, our [bird houses](#) are made from sustainable FSC® certified timber and have excellent insulation properties. This makes them warm in winter and cool in summer. RSPB nest boxes are carefully designed with correct dimensions and ventilation, without perches for intruders to grip onto and threaten the occupants.

[Read full information](#)

SAVE £2 WHEN YOU BUY TWO PROMOTIONAL NEST BOXES!

- Add two promotional nest boxes to your basket to save £2
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RSPB Robin and wren diamond nestbox

Product ID: R401640

£ 15.00

★★★★☆ [Read all reviews](#)

Best-selling, diamond shaped, open-fronted nest box attractive to robins, wrens, pied wagtails and spotted flycatcher.

[Read full information](#)

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Home > Bird care > Bird houses & nest boxes > Garden bird nest boxes > Apex starling nestbox

Print



Apex starling nestbox

Product ID: R405836

£ 30.00

★★★★☆ [Read all reviews](#)

Beautifully made FSC® certified timber nest box designed with starlings in mind. The 45mm entry hole allows the larger birds to nest in the box.

Features include drainage holes and one side that pivots open for easy end-of-season cleaning.

Nest box measures 31.5 x 18.5 x 18cm.

[Read full information](#)

SAVE £2 WHEN YOU BUY TWO PROMOTIONAL NEST BOXES!

- Add two promotional nest boxes to your basket to save £2
- Offer ends 4 January 2023 and is subject to availability
- Loyalty points can be collected/redeemed as usual
- Not available in conjunction with any other offer

barkboxes.co.uk/product/open-fronted-nest-box/

Sign In | Fulcrum ... UK Grid Reference ... National Biodiversit... Bing Maps ... Santander Online... Microsoft Office Ho... Jacobs Engineering... Jacobs Engineering... Worldwid



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Open Fronted Nest Box

£25.00

For birds such as robin and pied wagtail. Open fronted but with a generous canopy to screen from aerial predators. Place in good cover not in the open.

43 in stock

- 1 + [Add to basket](#)

Category: bird and bat boxes

Description Additional information Reviews (0)

Description

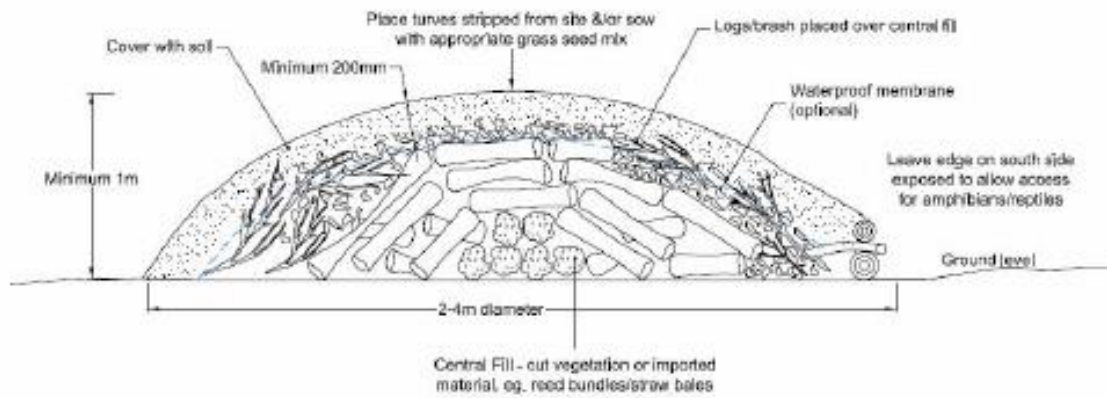
Height the

Width

Depth

Typical Weight

Appendix A7 Herptile hibernacula



SECTION THROUGH AMPHIBIAN/REPTILE HIBERNACULUM



PHOTOGRAPH 1 - CENTRAL CORE PLACED OF REED BUNDLES AND RUSH BALES



PHOTOGRAPH 2 - LOGS PLACED OVER CENTRAL CORE



PHOTOGRAPH 3 - BRASH PLACED OVER REED BUNDLES AND LARGE TIMBERS



PHOTOGRAPH 4 - EXPOSING OF TIMBERS ON SOUTH FACE



PHOTOGRAPH 5 - ENTRY POINT ALONG SOUTH FACING BANK



PHOTOGRAPH 6 - COMPLETED HIBERNACULUM BANK

Drawing Title:
AMPHIBIAN/REPTILE
HIBERNACULUM DESIGN

Appendix A8 Stag beetle loggery

Build a log pile for stag beetles

Stag beetles are one of the largest insects in the UK. They are in decline across Europe but there are many simple things you can do to help.

How you can help stag beetles

Stag beetles don't move far from where they emerge. Although males can fly up to 500m, most female stag beetles don't travel more than 20m and return to where they emerged to lay eggs. This means populations are vulnerable to becoming isolated and if there isn't enough dead wood nearby, dying out all together.

Private gardens are very important habitats for stag beetles. They rely on decaying wood that is in contact with the soil, both to feed on as larvae and in which to lay their eggs.

You can help by building a log pile in your garden to ensure that there is a good supply of suitable dead wood nearby for females to lay their eggs in.



Stag beetle facts

- ▶ They are Britain's largest native terrestrial beetle
- ▶ The larvae develop underground in rotting wood for several years
- ▶ The adult only lives for a few weeks in the summer with the sole purpose of finding a mate
- ▶ Adult beetles don't eat but rely on the fat stores built up during their larval stage
- ▶ The male's antler-like jaws are used to fight off rival males

Images: Peter Cox, Ben Andrew, PPTIS



Please create a log pile for stag beetles and map it at www.ptes.org/stagbeetle. For more tips please see over.



How to make a log pile

- ▶ Log pyramids can be built at any time of year
- ▶ Use wood from any broadleaved tree
- ▶ The logs should be at least the thickness of an adults arm
- ▶ Site the logs in partial shade if possible to prevent them drying out
- ▶ Partially bury the logs in the soil so that they don't dry out
- ▶ Allow plants to grow over the log pyramid to retain moisture and provide shade

Your log pile will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.



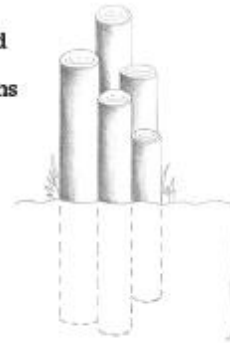
Large log pyramid suitable for parks and large gardens



Ground level

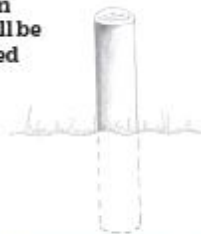
Approx. 50cm deep

Log pyramid suitable for small gardens



Approx. 50cm deep

Or, if space is limited, a single log on or in the soil will be appreciated



More tips for stag beetle friendly gardening

- ▶ Leave tree stumps in place if possible, they can become garden features with plants growing over them
- ▶ Try not to use pesticides
- ▶ Keep a lid on your water butt as stag beetles are known to fall in and drown
- ▶ Avoid using polythene sheeting to control weeds. Newly emerging stag beetles can get trapped beneath it in spring and die
- ▶ If you find larvae in the bottom of rotten fence posts and need to move them, dig a hole elsewhere in your garden and put them in together with some of the rotting wood from the original site. Cover loosely with soil

Images: Ross Brown, Steve Heywood

